



## DECEMBER 2019 QUARTERLY ACTIVITIES REPORT

SIGNIFICANT IMPROVEMENT IN LITHIA RECOVERIES ACHIEVED, WHILE MODERATED PRODUCTION CAMPAIGN CONTINUED IN SUPPORT OF DISCIPLINED CASH MANAGEMENT.

### KEY POINTS

#### PRODUCTION AND SALES

- Campaign mining and processing continued in response to current market conditions.
- Shipments totalled 33,178 dmt of spodumene concentrate to offtake customers (September Quarter: 20,044 dmt).
- Material improvement in lithia recovery following completion of plant improvement works, including:
  - a 63%-73% recovery range (average 67% sustained lithia recovery) during an 18-day period of steady-state production; and
  - a 36 hour lithia recovery rate of 70% prior to closing the process campaign on 23 November 2019.
- Further lithia recovery optimisation and improvements are expected with additional plant operating time and a return to continuous production.
- Production of 14,711 dry metric tonnes (dmt) of spodumene concentrate (September Quarter: 21,322 dmt).
- Highest quarterly tantalite concentrate sales, with a total of 78,156 lbs sold (September Quarter: 10,765 lbs), which included the first sale of secondary ~30% tantalite concentrate.

#### PROJECT DEVELOPMENT

- Further technical studies for revised Stage 2 (5Mtpa) expansion progressed during the Quarter, with results to date supporting an incremental and optimised expansion.
  - Results from study expected to be released during the March 2020 Quarter with final investment decisions to follow thereafter, subject to market conditions and customer requirements.
  - Long lead major mechanical equipment for Stage 2 expansion received during the Quarter, including a high-pressure grinding roll (HPGR) and filter press.
- POSCO have indicated it will undertake additional technical review at its existing demonstration plant and further lithium market evaluation prior to them obtaining final approvals (by June 2020) for the downstream joint venture.

#### CORPORATE

- \$111.5M equity raising completed during the Quarter following receipt of \$50M from Contemporary Amperex Technology (CATL) and closure of the oversubscribed \$20M Share Purchase Plan during October 2019.
- Cash balance as at 31 December 2019 of \$105.5M (30 September 2019: \$60.9M) inclusive of the final \$70M of proceeds received following completion of the successful equity raising.



## 1. MANAGEMENT OVERVIEW

Ken Brinsden, Pilbara Minerals' Managing Director and CEO, said:

*"In November we were deeply impacted by the tragic death at our Pilgangoora Project site of an employee of one of our contracting partners as a result of a non-work related incident. Working with our contracting partner, we have offered support to the families and colleagues affected and continue to extend our thoughts and deepest sympathies.*

*While soft conditions in the global lithium market persisted throughout the December Quarter, we made important progress operationally to ensure the Company is well placed to capitalise on the turnaround in market conditions, when that occurs.*

*An outstanding achievement was the successful completion and commissioning of the most recent phase of process plant improvement works. These works delivered a significant uplift in lithia recoveries during production activities, with an average sustained lithia recovery of 67% realised and a lithia recovery range of 63-73% achieved during periods of steady-state operations.*

*These recovery results are materially higher than that achieved to date and reflect the extensive technical input, hard work and key operational learnings applied by Pilbara Minerals' team.*

*This significant improvement in lithia recovery is a great result and will be a key contributor to reducing long-term operating costs and achieving our target level of US\$320-350/dmt, once nameplate capacity is achieved.*

*The market has continued to be challenging as the industry readjusts to the new subsidy regime in China that favours the emerging high-nickel cathode batteries. However, we must not lose sight of the long-term, competitive advantage this will provide hard-rock lithium producers such as Pilbara Minerals. The quality of our product and the cost and time efficiencies achieved by being able to directly convert our spodumene concentrate to lithium hydroxide will in time make ours the product of choice for the fast-growing high-nickel cathode sector of the battery industry."*

## 2. OPERATIONS OVERVIEW

Pilbara Minerals Limited (**Pilbara Minerals or the Company**) is pleased to report there were no reportable work-related safety incidents during the December 2019 Quarter (the Quarter).

Since the September 2019 Quarter, Pilbara Minerals has moderated production from the Pilgangoora Lithium-Tantalum Project (Pilgangoora Project) in response to softer market conditions in China for lithium raw materials resulting in reduced customer demand.

Ore was generated from a mining campaign during the Quarter, which when combined with existing run-of-mine and crushed ore, resulted in production of 14,711 dmt of spodumene concentrate.

Sales for the Quarter were supported by this production, as well as the drawdown of product stocks produced in prior quarters.

Two shipments of spodumene concentrate were completed during the Quarter totalling 33,178 dmt, with product sold to the Company's long-term offtake partners. Spodumene concentrate stock on hand reduced to 25,730 dmt at the completion of the Quarter (30 September 2019: 52,450 dmt).



The volumes for mining, ore processed, shipments and stocks for the Quarter are shown in Tables 1, 2 and 3 below.

Table 1: Total ore mined and processed

	Units	Q3 FY19	Q4 FY19	Q1 FY20	Q2 FY20
<b>Ore mined</b>	wmt	540,426	640,173	303,177	<b>65,941</b>
<b>Waste mined</b>	wmt	2,445,917	1,900,027	868,441	<b>26,046</b>
<b>Total material mined</b>	wmt	2,986,342	2,540,200	1,171,618	<b>91,987</b>
<b>Ore processed</b>	dmt	414,223	456,541	202,596	<b>102,251</b>

## 2.1 MINING COMMENTARY

Consistent with the Company's strategy of conserving cash and reducing costs in current market conditions, there was minimal mining activity during the Quarter with mine ore production totalling 65,941 wmt at an average grade of 1.45% lithia.

It is expected that some campaign mining activity will occur during the March Quarter 2020, however mining will continue to be moderated to match customer demand.

## 2.2 PROCESSING COMMENTARY

The processing plant continued to be campaign operated during the Quarter, resulting in 14,711 dmt of spodumene concentrate production at 5.91% Li<sub>2</sub>O (refer Table 2).

Following the completion and commissioning of modification works to optimise the plant during the Quarter, the processing plant demonstrated strong improvement in the area of lithia recovery. An average lithia recovery of 60% was achieved for the Quarter inclusive of commissioning, optimisation and ramp-up/down periods.

Within the Quarter and during an 18-day period of steady-state production, the processing plant achieved an average lithia recovery of 67% and a range of 63% to 73%. Notably, the processing plant delivered an outstanding 70% lithia recovery rate over the 36-hour period prior to the recent production campaign close.

This increase in lithia recoveries resulted from key plant optimisation and improvement works undertaken by the Company, which were largely completed during the Quarter. These were primarily rectifications relating to work performed by the EPC contractor during construction of the plant (refer June 2019 Quarterly Activities Report).

### Iron removal – fines product circuit

Commissioning and ramp-up of the LIMS (low intensity magnetic separation) was completed during the Quarter following receipt of the long-lead LIMS magnetic drums. The primary purpose of installing additional LIMS is to remove introduced free iron generated from grinding media wear within the milling circuit. This installation increases the capacity of the LIMS which had been undersized in the original design by the EPC contractor.

Installation of the final controls' equipment for the WHIMS (wet high intensity magnetic separation) was received and installed following hand-over of the units from the liquidator of the EPC contractor, further aiding iron removal.

### Grind size – fines product circuit

The introduction of additional plant controls (including some automation) and continued plant surveys are now contributing to further grind size control, and therefore improved flotation performance. As previously advised the classification process for ore sizing (grind size) pre-flotation is an important contributor to float performance (and therefore overall fines lithia recovery).



Further work was also completed during the Quarter to provide additional monitoring and control loops to assist in the stability and control of the plant during operation. Improvements in plant stability and control were observed during the Quarter. This package of work is ongoing.

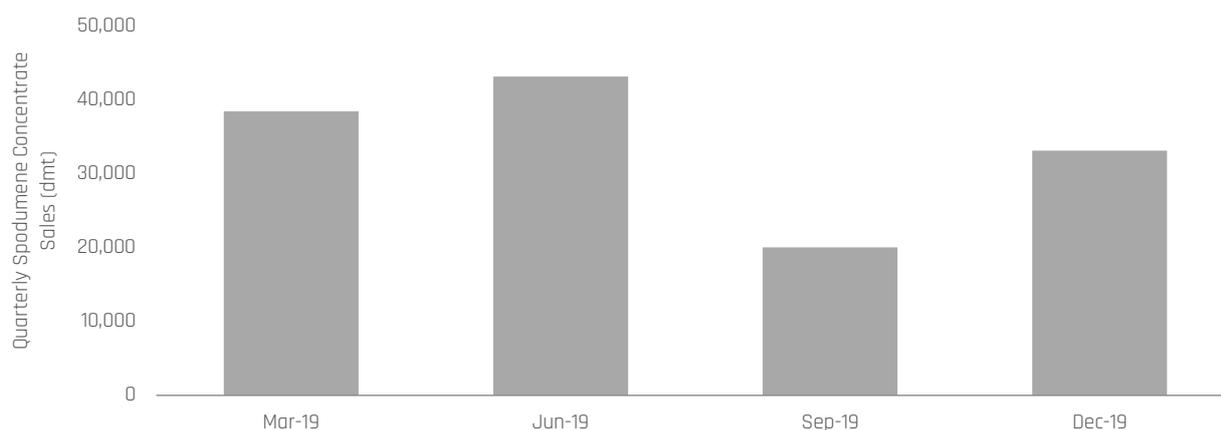
The Company anticipates that with further plant optimisation and operating time, product recoveries will continue to improve to achieve a targeted design recovery rate in the range of 72% -78% lithia when the plant is operated at nameplate capacity on a continuous basis.

Lithia recovery is a key contributor to achieving unit operating cost reductions at the Pilgangoora Project. Forecast cash operating unit costs are expected to trend towards US\$320-350/dmt CFR China (SC6.0 basis) once further optimisation works are completed and the market supports operating the plant consistently at nameplate capacity.

## 2.3 SHIPMENTS AND SALES

A total of 33,178 dmt of spodumene concentrate was shipped, largely consistent with the lower end of previous guidance. Product shipped was a blend of coarse and fines concentrate achieving contracted lithia grade specification (either SC6.0% or SC5.5% Li<sub>2</sub>O). The sale of SC5.5% product aligned with the Company's strategy to reduce historical stockpiles and conserve working capital.

Figure 1: Quarterly spodumene concentrate sales



Uncertainty in the short-term direction of the Chinese market meant customer demand continued to be subdued during the Quarter. Based on indicative customer demand, Pilbara Minerals' forecasts its sales guidance for the March Quarter 2020 to be 35,000 to 50,000 dmt of spodumene concentrate. The Company continues to engage with existing and prospective customers.

During the Quarter, Pilbara Minerals was pleased to achieve its highest quarterly tantalite concentrate sales, with a total of 78,156 lbs of tantalite concentrate sold (provisional sales, pending final reconciliation and assay results) which included the first sale of secondary ~30% tantalite concentrate.



Table 2: Production and shipments

	Units	Q3 FY19	Q4 FY19	Q1 FY20	Q2 FY20
<b>Spodumene concentrate produced</b>	dmt	52,196	63,782	21,322	<b>14,711</b>
<b>Spodumene concentrate shipped</b>	dmt	38,562	43,214	20,044	<b>33,178</b>
<b>Tantalite concentrate produced</b>	lb	33,374	67,075	48,825	<b>11,162</b>
<b>Tantalite concentrate shipped</b>	lb	30,356	38,856	10,765	<b>78,156<sup>1</sup></b>

<sup>1</sup> Sales estimates pending final reconciliation and assay results.

Table 3: Stocks position

	Units	Q3 FY19	Q4 FY19	Q1 FY20	Q2 FY20
<b>ROM stockpile</b>	wmt	520,606	685,912	775,992	<b>739,466</b>
<b>Coarse ore stockpile</b>	wmt	96,139	83,620	84,749	<b>92,034</b>
<b>Spodumene concentrate stocks</b>	dmt	30,900	51,468	52,450	<b>25,730<sup>1</sup></b>
<b>Tantalite concentrate product stocks</b>	lb	46,634	74,853	112,914	<b>45,920</b>

<sup>1</sup> Includes an adjustment of 8,253 dmt for lower-specification stocks which are unlikely to be used or sold in the next 12-months and lower-grade material used as sheeting for stockpile management. This material could potentially be re-processed and sold in the future, subject to market conditions.

### 3. MARKET COMMENTARY

The Quarter continued to be weak in respect of customer demand for lithium raw materials, impacting both spodumene exports from Western Australia and continuing to reduce pricing across the entire lithium raw materials and chemicals product suite. Pilbara Minerals has continued to moderate production in a proactive response to these conditions, thereby reducing costs and using available stocks of ore and final product to support customer sales. Other Australian hard-rock producers have also responded to these soft market conditions by reducing production or placing operations in care and maintenance.

While electric vehicle (EV) production is still growing in China, the relative pace of growth tempered in 2019, with total sales declining 4% year-on-year to 1.2 million units. The fall in sales and slower than anticipated EV uptake has contributed to a softening in lithium chemical and spodumene concentrate pricing. Platts (S&P Global) recently reported spodumene concentrate pricing at US\$460/mt (SC6.0 FOB Australia basis) for December 2019. Roskill predicts that the price for both concentrate and battery grade carbonate and hydroxide could fall even further in the first half of the 2020 calendar year before reaching a floor sometime during this same year.

In the medium-term, stronger support for lithium raw material demand growth is expected to occur as a result of the sourcing initiatives currently underway by battery and car manufacturers, which will lead to increased demand for lithium-ion batteries globally. Roskill expects the lithium market to gain perpetual traction between 2022 and 2023, forecasting demand for lithium compounds to more than double over the next five years. Benchmark Mineral Intelligence (BMI) expects global EV sales to increase to approximately 12.4 million units at a penetration rate of approximately 11% by 2025, before growing to approximately 54.3 million units by 2035 (an approximate 44% penetration rate).



Pilbara Minerals' long-term offtake partners made great progress towards the end of 2019 in preparation for improved market conditions. In December, Ganfeng Lithium signed a long-term agreement for lithium compounds with BMW Group to supply their designated battery or cathode makers for five years starting from 2020, with a total order volume value of US\$599M. One hundred percent of the lithium hydroxide the BMW Group needs for the manufacture of fifth generation battery cells for its high-voltage business is expected to come from sustainable and secure Australian hard-rock lithium mines such as the Pilgangoora Project. By 2023, the BMW Group aims to have 25 electrified models and by 2025 it expects to need seven times the amount of lithium compounds compared to today.

Pilbara Minerals' largest shareholder CATL is also integrated within this supply chain, with the BMW Group recently announcing an increase to its order volume for batteries from CATL to US\$8.09B from 2020 to 2031.

In November 2019, SVOLT Energy, Great Wall Motor's wholly owned subsidiary, announced the official opening of the first phase of its automotive-grade intelligent battery plant in Changzhou, China. The facility ultimately involves an investment of US\$1.14B with the first phase capacity expected to reach 4GWh. General Lithium is also looking to expand its capacity with plans to build a ~60,000t LCE plant in Hubei, China, adding to their current conversion capacity of over 20,000t LCE across two plants in Jiangxi and Jiangsu. Plans and deals such as those mentioned demonstrate the strength and quality of the offtake partners that have been attracted to and invested in Pilbara Minerals and the Pilgangoora Project.

During the Quarter, Pilbara Minerals continued to actively engage with its current Stage 1 offtake partners, as well as additional industry participants, regarding sales and product supply for the March Quarter 2020 and for the 2020 calendar year.

The start of 2020 has shown some positive signs with improved performance and valuations of lithium equities, in particular Chinese companies participating in the lithium ion supply chain. This may in part be explained by the buoyant market news, which has included delivery of Tesla's first EV from its Shanghai car manufacturing facility (Gigafactory 3) in December. In addition, China's Minister for Industry and Information Technology also announced that the government does not plan to carry out further reductions to EV subsidies in China in July 2020, reaffirming the Chinese government's intention to reach 25% penetration rate of EVs by 2025.

## 4. PROJECT DEVELOPMENT

### 4.1 STAGE 2 (5MTPA) EXPANSION

As previously noted in the September 2019 Quarter, the Company embarked on further technical studies to progress an optimised and incremental pathway for the delivery of a Stage 2 (5Mtpa) expansion that better aligns with customer timing and volume requirements.

A phased expansion provides several benefits including reduced upfront capital cost to deliver the first phase of incremental production tonnes to customers, with subsequent phases of the expansion to be aligned with customer requirements, ensuring maximum flexibility while also reducing capital risk.

A final decision on the suitability of the phased expansion is subject to the completion of the current technical studies and any subsequent studies that may be required to support a final investment decision. It is currently anticipated that any expansion will be delivered via three incremental phases as outlined in Table 4.



Table 4: Anticipated Stage 2 phased expansion volumes and capital

PHASE	INCREMENTAL CONCENTRATE CAPACITY (KT)	CAPEX (+/- 30%) (A\$M)
1	100	60-70
2	40-50	20-30
3	330-370	140-150
Total:	470-520	220-250

The study work undertaken during the period included further metallurgical test work to validate mass-flow and process design assumptions for varying ore types, and included:

- the use of mass-rejection to discard lower value ore early in the circuit, with the aim of both reducing production costs and increasing coarse-concentrate yield; and
- utilising latent equipment capacity in the existing circuit to increase production output, thereby lowering the overall cost of the expansion.

The test work results continue to support that an incremental expansion can be achieved, thereby avoiding the need for a full duplication of a new circuit as originally contemplated.

Further metallurgical test results in support of gangue material rejection are expected in the coming month with finalisation of the current technical study for the phased Stage 2 expansion expected in March 2020. Once finalised, this study is expected to confirm the number of phases, the size and estimated cost of each phase and the use of key process changes that will enable the incremental expansion.

Any ongoing study work on the incremental expansion will be reviewed against the latest production learnings and other parallel test work programs.

The timing of any expansion will be influenced by customer demand profiles and market conditions.

In addition to the study work progressed during the Quarter, certain major long lead equipment was received for the Stage 2 expansion, including a new high-pressure grinding roll (HPGR) and filter press.

## 5. EXPLORATION

Exploration during the Quarter included PQ diamond drilling and geo-met sampling programs all within the Pilgangoora Project's mining area. No exploratory drilling programs were undertaken.

### 5.1 PILGANGOORA PROJECT

Pilbara Minerals completed a PQ diamond drilling program at the Central, Eastern and Monster areas at the Pilgangoora Project. Drilling was undertaken by Mt Magnet Drilling Pty Ltd using a Hydco D800 truck mounted diamond rig (Figure 2). All up, a total of 11 holes were completed for 414m (Figure 3). Drill core was cut and processed on site with filleted samples sent to Nagrom laboratories in Perth for routine analysis. The majority of remnant drill core will be used for advanced metallurgical test work during studies being undertaken to deliver the incremental Stage 2 (5Mtpa) expansion.

In addition, the Company is undertaking advanced geo-metallurgical studies including whole-rock geochemistry, petrography and QEMSCAN analysis on the various ore types present at the Pilgangoora Project.



It is anticipated that results from this test work will assist in providing a cost and time-effective geochemical approach to discriminating the ore types and thereby allowing further improvements in lithia recovery through the process plant.

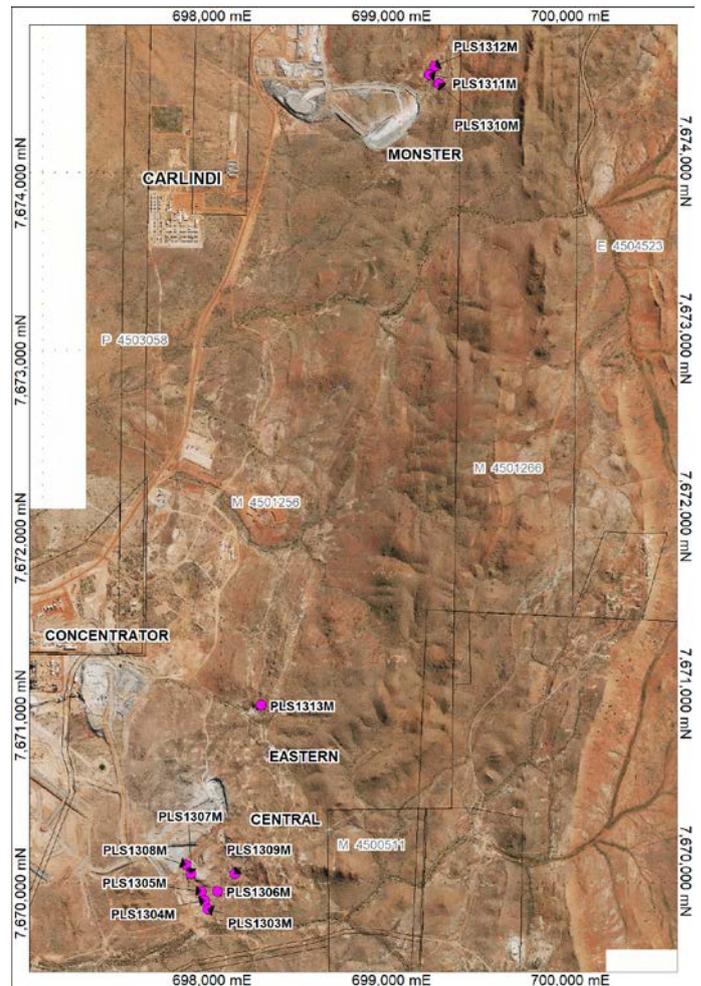
## 5.2 MT FRANCISCO JV (Pilbara Minerals Limited 51%, Atlas Iron 49%)

No exploration work was undertaken at Mt Francisco during the Quarter.

Figure 2: Diamond drilling Central Pit



Figure 3: Drill hole location plan



## 6. CORPORATE

The Quarter saw the completion of the \$111.5M equity raising with the receipt of \$50M from Contemporary Amperex Technology (CATL) following receipt of the required PRC regulatory and shareholder approvals. In addition, the \$20M Share Purchase Plan closed during October 2019 oversubscribed.

It was a busy Quarter for shareholder meetings, with the Company convening both a General Meeting and its Annual General Meeting (AGM). The General Meeting was convened on Wednesday 16 October 2019 to obtain shareholder approval for several resolutions relating to the \$111.5M capital raising which involved an institutional placement, a strategic investment by CATL and a Share Purchase Plan.



All resolutions at the General Meeting were passed by poll without amendment with proxy votes received overwhelmingly supporting the transaction. This capital raising has materially strengthened Pilbara Minerals' balance sheet and positions the Company well to weather current market conditions.

Following the completion of the equity raising, Contemporary Amperex Technology (CATL), China's biggest battery manufacturer for electric vehicles, became Pilbara Minerals' largest shareholder, holding approximately 8.24%.

Figure 4: Pilbara Minerals' General Meeting October 2019



## 6.1 POSCO DOWNSTREAM JOINT VENTURE

The downstream joint venture (JV) with POSCO to operate a chemical conversion facility in South Korea remains a key strategic and long-term objective for both the Company and POSCO.

During the Quarter, parties met several times in South Korea, including at the demonstration plant in Gwangyang, to discuss timing and progression of the JV. POSCO also continued to progress its internal investment committee approvals for the development of the chemical conversion facility in South Korea. POSCO have indicated that it wishes to undertake further technical evaluations on the design of the chemical conversion facility, as well as further market evaluation. As a result, it is anticipated POSCO will require a further six months before parties will be able to finalise JV documentation and obtain formal approvals. Final investment committee and board approvals, as well the execution of formal JV documentation is therefore now expected in the third quarter of the 2020 calendar year.



The Company is pleased to advise that POSCO and Pilbara Minerals have been nominated as finalists for the Australia – Korea Partnership, Award for Excellence at the 2020 Australia – Korea Business Awards in Seoul. This nomination is in recognition of the partnership between the two companies.

## 6.2 FINANCIAL RESULTS FROM OPERATIONS

During the Quarter, the Company shipped 33,178 dmt of spodumene concentrate, with approximately 60% of the tonnes being sold on an SC5.5% basis as the Company drew-down stockpiles from earlier plant commissioning and ramp-up activities. The SC6.0 reference price applied to sales during the Quarter was in the range of US\$500-USD\$600/dmt CIF.

As previously noted, operations at the Pilgangoora Project continued to be moderated during the Quarter in response to market conditions. The operational activities for this quarter included the drawn down of existing stockpiles, delayed mining activity and extended process plant shutdowns.

Unit operating costs will continue to be elevated while the Company operates under a moderated production strategy and until continuous operations can be achieved. Unit operating costs include mining, processing, transport, state and private royalties, native title costs, port, shipping/freight and site based general and administration costs and are net of Ta<sub>2</sub>O<sub>5</sub> by-product credits.

Recent improvements to lithia recovery, when combined with the completion of the final optimisation work currently being undertaken, should see unit costs normalise over the two to three quarters following the achievement of continuous operations and once operations have ramped up to nameplate capacity of ~330,000 tpa of spodumene concentrate. Costs are expected to trend towards US\$320-350/dmt CFR China once design plant production capacity is consistently achieved.

## 6.3 CASH BALANCE

Pilbara Minerals had a cash balance of \$105.5M as at 31 December 2019 (\$60.9M as at 30 September 2019). During the Quarter, Pilbara Minerals received:

- proceeds of \$70.0M following the completion of the placement to CATL and the Share Purchase Plan with eligible shareholders; and
- proceeds of \$27.9M largely from concentrate sales (inclusive of spodumene and tantalite).

Major cash outflows during the Quarter included:

- \$32.9M on operating costs at the Pilgangoora Project, inclusive of \$13.1M of costs incurred on prior quarter activities (but paid in the December Quarter);
- \$6.9M on capital costs attributable to the Pilgangoora Project, inclusive of Stage 1 capital costs, Stage 1 improvement projects, Stage 2 long lead items and development costs, and includes a one off adjustment related to a spot shipment that occurred prior to commercial production being declared;
- \$4.4M in interest and financing payments, largely associated with the USD senior secured bond facility;
- \$3.7M on payroll, administration and corporate costs;
- \$3.1M on exploration and evaluation work in relation to the Pilgangoora Project (including associated feasibility studies); and
- \$2.3M of costs associated with the equity placement completed in October 2019.



Major cash outflows forecast for the March 2020 Quarter total \$35.2M and include:

- \$19.8M for operating costs at the Pilgangoora Project (including investment in product stocks);
- \$7.7M on capital and exploration costs for Stage 1 operations capital (including plant improvement projects) and development costs for the Stage 2 expansion of the Pilgangoora Project (including studies, early works and long lead items);
- \$4.3M for the quarterly interest payment under the Company's senior secured bond facility; and
- \$3.4M for corporate, administration and staff costs.

At 31 December 2019, the Company's US\$15M working capital facility remained undrawn.

## 6.4 STAGE 1 DEBT FUNDING

During the Quarter, Pilbara Minerals continued to meet its payment obligations under its secured US\$100M Nordic Bond used to finance Stage 1 of the Pilgangoora Project.

### CONTACTS

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*Release authorised by Ken Brinsden, Pilbara Minerals Limited's Managing Director.*

### MORE INFORMATION

#### ABOUT PILBARA MINERALS

Pilbara Minerals is an Australian lithium-tantalum producer and a top-200 company on the Australian Securities Exchange (ASX: PLS). Through the development of its 100% owned, Pilgangoora Lithium-Tantalum Project (Pilgangoora Project), the Company is positioned to become a major player in the world's rapidly growing lithium supply chain, underpinned by the electric vehicle and energy storage markets.

Located in Western Australia's resource rich Pilbara region, the Pilgangoora Project hosts one of the world's largest hard rock lithium-tantalum deposits and is recognised as one of the most important new sources of lithium raw materials globally. The Pilgangoora Project's significant scale and outstanding quality has not only resulted in a remarkable development timeline, with Pilbara Minerals having progressed it from first drill hole to production in under four years, but also attracted a consortium of high quality global partners including Ganfeng Lithium, General Lithium, Great Wall Motor Company, POSCO and CATL.

Now that production is underway, Pilbara Minerals is focused on an expansion and diversification strategy to become one of the biggest and lowest cost lithium producers, and a fully integrated lithium raw materials and chemicals supplier in the years to come.

#### FORWARD LOOKING STATEMENTS AND IMPORTANT NOTICE

This announcement may contain some references to forecasts, estimates, assumptions and other forward-looking statements. Although the Company believes that its expectations, estimates and forecast outcomes are based on reasonable assumptions, it can give no assurance that they will be achieved. They may be affected by a variety of variables and changes in underlying assumptions that are subject to risk factors associated with the nature of the business, which



could cause actual results to differ materially from those expressed herein. All references to dollars (\$) and cents in this announcement are to Australian currency, unless otherwise stated.

Investors should make and rely upon their own enquiries before deciding to acquire or deal in the Company's securities.

## COMPETENT PERSON STATEMENT

The information in this report that relates to Exploration Results and Exploration Targets is based on and fairly represents information and supporting documentation prepared by Mr John Holmes (full-time Exploration and Geology Manager of Pilbara Minerals Limited). Mr Holmes is a shareholder of Pilbara Minerals. Mr Holmes is a member of the Australasian Institute of Geoscientists and has sufficient experience of relevance to the styles of mineralisation and types of deposits under consideration, and to the activities undertaken to qualify as Competent Persons as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Holmes consents to the inclusion in this report of the matters based on his information in the form and context in which they appear.



## APPENDIX 1 - TENEMENT TABLE AS AT 31 DECEMBER 2019

TENEMENT	LOCATION	STATUS	REGISTERED HOLDER	PLS BENEFICIAL HOLDING AT START OF PERIOD	PLS BENEFICIAL HOLDING AT END OF PERIOD
<b>ACTIVE TENEMENTS and APPLICATIONS AT COMMENCEMENT OF THE QUARTER</b>					
E45/2241	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
E45/3560	Pinnacle	Granted	Pilbara Minerals Limited	100%	100%
E45/3648	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
E45/4270	Mt Francisco	Granted	Pilbara Minerals Limited / Atlas Iron Ltd	70%	70%
E45/4523	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
E45/4624	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
E45/4633	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
E45/4640	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
E45/4648	Pinga	Granted	Pilbara Minerals Limited	100%	100%
E45/4689	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
E45/4961	Strelley	Granted	Pilgangoora Operations Pty Ltd	100%	100%
E45/5332	Pilgangoora	Application	Pilbara Minerals Limited	100%	100%
L45/396	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/402	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/403	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/411	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/413	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/414	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/417	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/421	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/425	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/429	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/430	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%



TENEMENT	LOCATION	STATUS	REGISTERED HOLDER	PLS BENEFICIAL HOLDING AT START OF PERIOD	PLS BENEFICIAL HOLDING AT END OF PERIOD
L45/449	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/450	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/453	Pilgangoora	Granted	Pilbara Minerals Limited	100%	100%
L45/454	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/473	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/477	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/478	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/479	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/480	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/481	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/482	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/497	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
L45/528	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
M45/1256	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
M45/1266	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
M45/1275	Pilgangoora	Application	Pilgangoora Operations Pty Ltd	100%	100%
M45/333	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
M45/511	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
M45/78	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
P45/2783	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
P45/3058	Pilgangoora	Granted	Pilgangoora Operations Pty Ltd	100%	100%
P45/3096	Pilgangoora	Application	Pilgangoora Operations Pty Ltd	100%	100%
<b>APPLICATIONS MADE DURING THE QUARTER</b>					
<b>TENEMENTS DISPOSED OF DURING THE QUARTER</b>					



## APPENDIX 2 - DRILL HOLE COLLAR LOCATIONS

HOLE ID	EAST GDA94	NORTH GDA94	RL	DIP	AZIMUTH	DEPTH
PLS1303M	697923	7669857	155	-55	90	42.1
PLS1304M	697903	7669890	155	-55	90	34.5
PLS1305M	697881	7669965	162	-90	0	43.6
PLS1306M	697981	7669950	168	-90	0	30.4
PLS1307M	697830	7670048	162	-90	0	45.8
PLS1308M	697799	7670096	162	-90	0	53.0
PLS1309M	698077	7670050	200	-80	90	36.3
PLS1310M	699219	7674500	214	-90	0	18.3
PLS1311M	699168	7674554	210	-90	0	29.5
PLS1312M	699191	7674600	207	-90	0	30.3
PLS1313M	698223	7670992	204	-70	270	54.2



## APPENDIX 3 - DRILL HOLE INTERCEPTS

Hole ID	From (m)	To (m)	Thickness (m)	Li <sub>2</sub> O %	Ta <sub>2</sub> O <sub>5</sub> (ppm)
PLS1309M	1.50	34.00	32.50	1.36	120.05
PLS1308M	0.74	14.60	13.86	0.68	73.43
PLS1306M	8.00	29.71	21.71	1.67	75.53
PLS1310M	5.09	14.84	9.75	1.54	177.07
PLS1311M	11.00	27.25	16.25	1.92	116.05
PLS1312M	3.80	25.93	22.13	1.43	141.48
PLS1313M	23.50	52.56	29.06	1.65	216.15
PLS1307M	0.00	42.70	42.70	1.43	127.43
PLS1305M	0.00	41.73	41.73	1.64	131.43
PLS1304M	0.00	31.14	31.14	1.54	69.61
PLS1303M	0.00	39.96	39.96	1.51	64.94

## APPENDIX 4

### JORC Code, 2012 Edition - Table 1 report

#### Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
<p><b>Sampling techniques</b></p>	<ul style="list-style-type: none"> <li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.</li> </ul>	<ul style="list-style-type: none"> <li>Pilbara Minerals Limited (PLS) have completed 11 PQ diamond drill holes for 414m in December 2019. Diamond core was sampled by taking a ¼ core sample fillet at nominal sample spacings of 0.5m within the pegmatite zones.</li> </ul>
	<ul style="list-style-type: none"> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> </ul>	<ul style="list-style-type: none"> <li>Samples were collected on nominal 0.5m spacings with sample boundaries defined by ore type and/or the ore contact with waste rock.</li> <li>A total of 784 samples were submitted for assay.</li> <li>Drill holes were spaced at nominal 50m spacings within the Central Pit and drilled to an average depth of 40m from the current pit floor.</li> </ul>
	<ul style="list-style-type: none"> <li>Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation</li> </ul>	<ul style="list-style-type: none"> <li>Drill core fillet samples were sent to Nagrom laboratory in Kelmscott, Perth and analysed for Al<sub>2</sub>O<sub>3</sub>, As<sub>2</sub>O<sub>3</sub>, BaO, CaO, Fe<sub>2</sub>O<sub>3</sub>, K<sub>2</sub>O, MgO, MnO, Na<sub>2</sub>O, P<sub>2</sub>O<sub>5</sub>, SiO<sub>2</sub>, SO<sub>3</sub>, TiO<sub>2</sub>, LOI1000, Cs<sub>2</sub>O, Li<sub>2</sub>O, MoO<sub>3</sub>, Nb<sub>2</sub>O<sub>5</sub>, Rb<sub>2</sub>O, SnO<sub>2</sub>, Ta<sub>2</sub>O<sub>5</sub>, ThO<sub>2</sub>, U<sub>3</sub>O<sub>8</sub>, WO<sub>3</sub>, Be, Pb, Sr, Zn, Zr.</li> </ul>

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
	<p><i>may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.</i></p>	
<b>Drilling techniques</b>	<ul style="list-style-type: none"> <li><i>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).</i></li> </ul>	<ul style="list-style-type: none"> <li>Diamond drilling was completed by Mt Magnet Drilling using a truck mounted Hydco 800 drill rig and truck mounted support vehicle. Core size was PQ3.</li> <li>Drill core was orientated for all angle holes using a Reflex Gyro tool.</li> </ul>
<b>Drill sample recovery</b>	<ul style="list-style-type: none"> <li><i>Method of recording and assessing core and chip sample recoveries and results assessed.</i></li> <li><i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i></li> <li><i>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</i></li> </ul>	<ul style="list-style-type: none"> <li>Recoveries for diamond holes were checked against drillers markers blocks using angled frame as part of standardized orientation and geotechnical process.</li> <li>All recovery and other geotechnical data recorded in database.</li> <li>Recovery for the majority of drill holes was 100%.</li> <li>Triple tube coring technique was used for all holes to maximise recovery through any areas of broken ground. Recovery for the majority of holes was 100%</li> <li>No material bias has been identified.</li> </ul>

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
<b>Logging</b>	<ul style="list-style-type: none"> <li>• <i>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Comprehensive geological and geotechnical logging has been undertaken to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> </ul>
	<ul style="list-style-type: none"> <li>• <i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Logging data was directly entered into the Pilbara Minerals OCRIS data logging system to streamline data entry to the DataShed database management system.</li> <li>• Wet and dry photography has been collected for all core trays using a digital SLR camera.</li> <li>• Selected samples collected for thin section petrology.</li> <li>• Selected samples collected for quantitative mineral analysis / TIMA.</li> </ul>
	<ul style="list-style-type: none"> <li>• <i>The total length and percentage of the relevant intersections logged.</i></li> </ul>	<ul style="list-style-type: none"> <li>• All drill core has been logged in detail.</li> </ul>
<b>Sub-sampling techniques and sample preparation</b>	<ul style="list-style-type: none"> <li>• <i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></li> <li>• <i>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</i></li> <li>• <i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></li> </ul>	<ul style="list-style-type: none"> <li>• All drill core was cut and sampled at the core logging facility at Pilgangoora.</li> <li>• Core was ¼ core sampled.</li> <li>• The remaining ¾ core was palletized and freighted to Nagrom Laboratories in Kelmscott for advanced metallurgical testwork.</li> </ul>
	<ul style="list-style-type: none"> <li>• <i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Quality control sampling including duplicates, standards and blanks were undertaken as part of the Pilbara Minerals standard sampling regime.</li> </ul>

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
	<ul style="list-style-type: none"> <li><i>Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.</i></li> <li><i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul>	<ul style="list-style-type: none"> <li>Nagrom provided laboratory standards and blanks as part of the internal QA/QC analysis.</li> <li>Quality control sampling including duplicates (second ¼ split), standards and blanks were undertaken as part of the PLS standard sampling regime.</li> <li>Standards and blanks submitted every 50<sup>th</sup> sample.</li> <li>Duplicates submitted every 40<sup>th</sup> sample (nominal 20m)</li> <li>Samples collected on a nominal 0.5m interval depending on ore type or ore/waste contact.</li> <li>Sample sizes are considered to be appropriate to correctly represent this style of mineralization.</li> </ul>
<p><b>Quality of assay data and laboratory tests</b></p>	<ul style="list-style-type: none"> <li><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total</i></li> <li><i>For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i></li> <li><i>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable</i></li> </ul>	<ul style="list-style-type: none"> <li>Drill core fillet samples were sent to Nagrom laboratory in Kelmscott, Perth and analysed for Al<sub>2</sub>O<sub>3</sub>, As<sub>2</sub>O<sub>3</sub>, BaO, CaO, Fe<sub>2</sub>O<sub>3</sub>, K<sub>2</sub>O, MgO, MnO, Na<sub>2</sub>O, P<sub>2</sub>O<sub>5</sub>, SiO<sub>2</sub>, SO<sub>3</sub>, TiO<sub>2</sub>, LOI1000, Cs<sub>2</sub>O, Li<sub>2</sub>O, MoO<sub>3</sub>, Nb<sub>2</sub>O<sub>5</sub>, Rb<sub>2</sub>O, SnO<sub>2</sub>, Ta<sub>2</sub>O<sub>5</sub>, ThO<sub>2</sub>, U<sub>3</sub>O<sub>8</sub>, WO<sub>3</sub>, Be, Pb, Sr, Zn, Zr.</li> <li>No geophysical tools were used to determine any element concentrations.</li> <li>Quality control sampling including duplicates (second ¼ split), standards and blanks were undertaken as part of the PLS standard sampling regime.</li> </ul>

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
	<p><i>levels of accuracy (i.e. lack of bias) and precision have been established.</i></p>	<ul style="list-style-type: none"> <li>Standards and blanks submitted every 50<sup>th</sup> sample.</li> <li>Duplicates submitted every 40<sup>th</sup> sample (nominal 20m).</li> <li>Samples collected on a nominal 0.5m interval depending on ore type or ore/waste contact.</li> </ul>
<p><b>Verification of sampling and assaying</b></p>	<ul style="list-style-type: none"> <li><i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li><i>The use of twinned holes.</i></li> </ul>	<ul style="list-style-type: none"> <li>Holes were drilled for metallurgical purposes.</li> <li>Assessment of results against historical drill hole data will be undertaken once assays received.</li> </ul>
	<ul style="list-style-type: none"> <li><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li></li> </ul>	<ul style="list-style-type: none"> <li>An electronic database containing sample location, assays and geology for all Pilbara Minerals samples has been maintained. Data is compiled and stored by independent database administrators (Mitchell River Group).</li> <li>All PLS assays were sourced directly from NAGROM as certified laboratory files.</li> </ul>
	<ul style="list-style-type: none"> <li><i>Discuss any adjustment to assay data.</i></li> </ul>	<ul style="list-style-type: none"> <li>No adjustment to assay data at the time of reporting.</li> <li>A single stage adjustment will be applied to the Fe<sub>2</sub>O<sub>3</sub> assays to account for contamination of pulps by the steel bowl at the grinding stage. Historically this involves subtracting 0.33% from all Nagrom Fe<sub>2</sub>O<sub>3</sub> assays. The factor was determined from a significant dataset from previously diamond core sampling campaigns.</li> </ul>
<p><b>Location of data points</b></p>	<ul style="list-style-type: none"> <li><i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i></li> </ul>	<ul style="list-style-type: none"> <li>Drill hole collar locations were surveyed at the end of the program using a DGPS with +/- 10cm accuracy on northing, easting &amp; RL by PLS personnel.</li> <li>Downhole survey information was also collected using a Reflex Gyro Survey/Steering System instrument for all angled diamond</li> </ul>

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
	<ul style="list-style-type: none"> <li><i>Specification of the grid system used.</i></li> <li><i>Quality and adequacy of topographic control.</i></li> </ul>	<p>holes. Vertical holes were also surveyed at the collar and at 30m intervals using the same tool.</p> <ul style="list-style-type: none"> <li>The grid used was MGA (GDA94, Zone 50).</li> <li>Topographic control is maintained by mine site surveyors using accurate base stations.</li> </ul>
<b>Data spacing and distribution</b>	<ul style="list-style-type: none"> <li><i>Data spacing for reporting of Exploration Results</i></li> <li><i>Whether the data spacing, and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i></li> <li><i>Whether sample compositing has been applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>Drilling spacings vary between 50m to 200m apart.</li> <li>The continuity of the mineralization has been interpreted from Pilbara Minerals detailed geological mapping and geological modelling.</li> <li>Compositing of samples has not been applied to this dataset.</li> </ul>
<b>Orientation of data in relation to geological structure</b>	<ul style="list-style-type: none"> <li><i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li><i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i></li> </ul>	<ul style="list-style-type: none"> <li>The mineralisation dips between 20 and 60 degrees at a dip direction between 050 and 115 degrees for the majority of the domains. The Monster zone strikes 040 to 045 degrees and dips moderately to the south-east.</li> <li>The drilling orientation and the intersection angles are deemed appropriate.</li> <li>No orientation-based sampling bias has been identified.</li> </ul>
<b>Sample security</b>	<ul style="list-style-type: none"> <li><i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>Chain of custody for Pilbara Minerals samples were managed by Pilbara Minerals personnel. Samples for analysis were delivered</li> </ul>

CRITERIA	JORC CODE EXPLANATION	COMMENTARY
		to the Nagrom laboratory in Kelmscott by Centurion Transport courier truck in 2019.
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>The results of any audits or reviews of sampling techniques and data.</li> </ul>	<ul style="list-style-type: none"> <li>The collar and assay data have been reviewed by compiling a SQL relational database. This allowed some minor sample numbering discrepancies to be identified and amended.</li> <li>Drilling locations and survey orientations have been checked visually in 3 dimensions and found to be consistent.</li> </ul>

## Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<ul style="list-style-type: none"> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites</li> </ul>	<ul style="list-style-type: none"> <li>M45/1256 is registered in the name of Pilgangoora Operations Pty Ltd.</li> <li>The tenement is 100% owned by Pilgangoora Operations Pty Ltd, a 100% owned subsidiary of Pilbara Minerals Limited.</li> </ul>
	<ul style="list-style-type: none"> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> </ul>	<ul style="list-style-type: none"> <li>No known impediments.</li> </ul>
<b>Exploration done by other parties</b>	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>Talison completed RC holes in 2008</li> <li>GAM completed RC holes between 2010 and 2012.</li> <li>Pilbara Minerals Limited has completed</li> </ul>

Criteria	JORC Code explanation	Commentary
		multiple RC, Diamond and RC Grade control drilling programs within the Pilgangoora area prior to this diamond drilling campaign
<b>Geology</b>	<ul style="list-style-type: none"> <li>• <i>Deposit type, geological setting and style of mineralisation.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The Pilgangoora pegmatites are part of the later stages of intrusion of Archaean granitic batholiths into Archaean meta-gabbros and metavolcanics.</li> </ul>
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <li>• <i>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes, including easting and northing of the drill hole collar, elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar, dip and azimuth of the hole, down hole length and interception depth plus hole length.</i></li> <li>• <i>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Refer to Appendix 2 in this report.</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <li>• <i>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</i></li> <li>• <i>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</i></li> <li>• <i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Length weighted averages used for drill hole results. Cutting of high grades was not applied in the reporting of intercepts in Appendix 3.</li> <li>• No metal equivalent values are used.</li> </ul>
<b>Relationship between mineralisation widths and intercept lengths</b>	<ul style="list-style-type: none"> <li>• <i>These relationships are particularly important in the reporting of Exploration Results.</i></li> <li>• <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i></li> <li>• <i>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</i></li> </ul>	<ul style="list-style-type: none"> <li>• Downhole lengths are reported in Appendix 3 of this report.</li> </ul>
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>• <i>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</i></li> </ul>	<ul style="list-style-type: none"> <li>• See Figure 3.</li> </ul>
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li>• <i>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced avoiding misleading reporting of Exploration Results.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Comprehensive reporting of drilling details has been provided in Appendix 2.</li> <li>• Comprehensive reporting of drill hole intercepts has been provided in Appendix 3.</li> </ul>

Criteria	JORC Code explanation	Commentary
<p><b>Other substantive exploration data</b></p>	<ul style="list-style-type: none"> <li>• <i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i></li> </ul>	<ul style="list-style-type: none"> <li>• All meaningful and material exploration data has been reported.</li> </ul>
<p><b>Further work</b></p>	<ul style="list-style-type: none"> <li>• <i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li>• <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Further work includes assessment of the drill core will include comprehensive advanced metallurgical test work on all the pegmatite domains.</li> <li>• In addition, quantitative mineralogical analysis and petrographic analysis of selected samples will be undertaken.</li> </ul>